

DECORATIVE CONCRETE

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I. INTRODUCTION

For many years, concrete has been used as a simple, effective and low cost surface for all sorts of areas ranging from car parks to driveways to commercial freight yards. However, the one factor you rarely hear being praised is its **looks**.

Techniques to improve the aesthetic appeal of monolithic concrete pavements have been around since the fifties, notably in North America where concrete is possibly the most popular surfacing for patios, drives and 'yards', and in the southern hemisphere, particularly Australia. However, it is only since the mid 1980s that many of these techniques found their way to the North-west European paving market.

Decorative concretes have been used to dramatic effect in new structural developments such as the Trafford Centre in Birmingham, UK, the Basilica of Yamoussoukro on the Ivory Coast and the new European Parliament building. Dramatic effects are not only achieved in large structures though. Coloured concrete is just as effectively used in architectural pavements, paving stones and internal flooring

Undoubtedly, the most popular prettifying technique we see in the UK and Ireland and other western countries are Pattern Imprint, sometimes known as 'Stamped'?'Imprinted' or 'Textured' concrete. From a sluggish start at the back end of the 1980s this technique has slowly but surely grown in popularity and now attracts a reasonable level of interest, in both the residential and the commercial markets.

In recent years, refinements and developments of this technique have emerged and we now have stencilling techniques, high-strength textured overlays. These techniques are described in the following pages.



Stenciled Concrete-'Stencilcrete'

II. PATTERN IMPRINTED CONCRETE (PIC)

2.1 INTRODUCTION:-

Pattern Imprinted Concrete (PIC) is the most popular Decorative Concrete technique currently used in the UK. This section looks at some of the choices available with PIC, as well as the markets where it sells best, the pros and cons. Construction of a PIC pavement is dealt later on.

2.2 MARKETS:-

The use of PIC can be divided into two main markets: the residential customers wanting their driveways, patios, paths, pool sides etc surfaced, and the commercial sector, where clients look for a low-maintenance, attractive and decorative or customizable surface. It is rarely, if ever, used on medium-to-high speed vehicular traffic applications, such as roadways, as the finished surface is too uneven, and the same criterion seems to rule out its use in shopping malls and town centers, where small-wheeled trolleys would struggle to cope with the textured surface.

2.3 PATTERNS AND COLOURS¹:-

			
Ashlar Stone — riven or hewn stone effect in rectangles and squares	Random Stone — stone 'crazy' paving effect	Cobbles — replicating coursed settwork and cobbles or European fan effects	Brickwork — imitating herringbone, basketweave .

			
Tiled — mimicking square, rectangular and/or octagonal tiles	Textures — seamless stone or slate textured effect	Decking — simulating 'boardwalks' or planking	Safety — barred patterns for increased traction on ramps; blister paving etc.

The Ashlar stone and Herringbone brick would seem to be the most popular patterns in the UK market.

Colours tend to be somewhere in the black-brown-buff-red part of the spectrum, although there are greens and blues. Like the paint market, some of the colour names are not to be taken too literally. Often a lighter and darker shade are combined to give the impression of extra 'depth' to the surfacing. For example, an Ashlar stone effect surface might feature a darker brown base colour with 'highlights' done in a buff.

2.4 PROS AND CONS:-

When done properly, and not aggravated by adverse weather conditions, PIC paving can look very attractive, and will require almost no maintenance. Unfortunately, good contractors in this particular discipline are few and far between, so it is essential that references are taken, previous jobs visited, and clients chatted to, to ensure you have chosen a reliable and competent firm.

When done badly, there is no way of correcting any problems, as the concrete is rigid and impossible to patch repair invisibly. If the contractor does not get the job right first time, there is no remedial action other than to rip it up and redo.

Also, there is concern regarding underground services and drainage that may be covered by the PIC. Should any remedial work ever be required on buried services, the PIC will need to be broken out and any patching will be impossible to hide. The only solution is to create band courses or similar to delineate the original surface from the patched area.

Common problems reported with PIC include cracking of the surface at places other than control joints and 'flaking' of the surface. Both of these faults are directly attributable to bad workmanship. Correct preparation of

the sub-base/sub-grade and inclusion of well-formed crack control joints should eliminate all unwanted cracking, while flaking is often a result of poor floating of the colour hardener and/or the release agent. This spalling of the surface can also be brought about by the addition of extra water to the mix, which adversely affects the design strength of the concrete.



Cracking and Flaking Of PIC



Algae and Traffic Wear

And despite the claims often made by the sales agents, algae and lichens *do* colonise PIC, so it is not maintenance free. The surface needs to be swept regularly to keep it free of detritus which can accumulate on the uneven surface and in the 'joints' of certain patterns. Also, the sealant will need to be re-applied every 2-4 years, especially on heavily trafficked areas, which can wear quite quickly, exposing the plain grey concrete beneath, if the original sealant is allowed to deteriorate.

III. STENCILCRETE

3.1 INTRODUCTION:-

This is a fairly straightforward variation of Pattern Imprinting. A concrete substrate is prepared and a paper stencil of the chosen pattern is laid over the still-wet surface before a colour-hardener is applied. The stencil is peeled away once the surface has dried, leaving an imprint of the pattern with the colour on the non-masked areas.

Stencilcrete offers the alternative to plain concrete surfacing around your home or business. The unique *Stencilcrete* surface provides the key advantage of a high quality image and finish at very reasonable cost and in a relatively short period of time. The product has the look of a paved area but eliminates the problems of structural movement and weed growth of other paving forms. Architects, designers, engineers and local councils all agree that *Stencilcrete* is fast becoming the preferred surface alternative.

Stencilcrete can be used indoors or outdoors. It is commonly used in commercial areas including roads, traffic islands, parking lots, pedestrian walkways, and shopping centers.

In public areas such as footpaths, and domestic areas like driveways, paths, patios and pools surrounds, Stencilcrete is a popular solution.

A complete range of colours, patterns and textures allows you to create your very own customised appeal.

Stencilcrete used at various places:-



Stencilcrete brings style and appeal to commercial settings.



Stencilcrete driveways become a feature for the home.





Stencilcrete offers a full variety of appeals - with one to suit your home.



3.2 WHY USE STENCILCRETE?-



Fast

Fast - Get the full visual effect of conventional block paving in a fraction of the time. The Stencilcrete laying process is extremely quick and easy. Now you can enjoy the end result sooner.



Cost Efficient

Cost efficient - Stencilcrete delivers the same aesthetic appeal as conventional paving at a fraction of the cost. The highly efficient Stencilcrete system requires less labour in laying. Make huge savings using Stencilcrete surfacing.



Style

Style - Stencilcrete delivers the flexibility to create the perfect appeal for your home. Elaborate paving patterns, bordered edges and mixed block colouring becomes affordable and easy. With the full effect of expertly grouted paving blocks, you can get the exact finish you want.



Durable

Durable - The Stencilcrete surface is extremely hard-wearing and is treated against discolouration and fading. It's designed to handle high traffic loads and lasts for years under the most stressful situations.



Custom

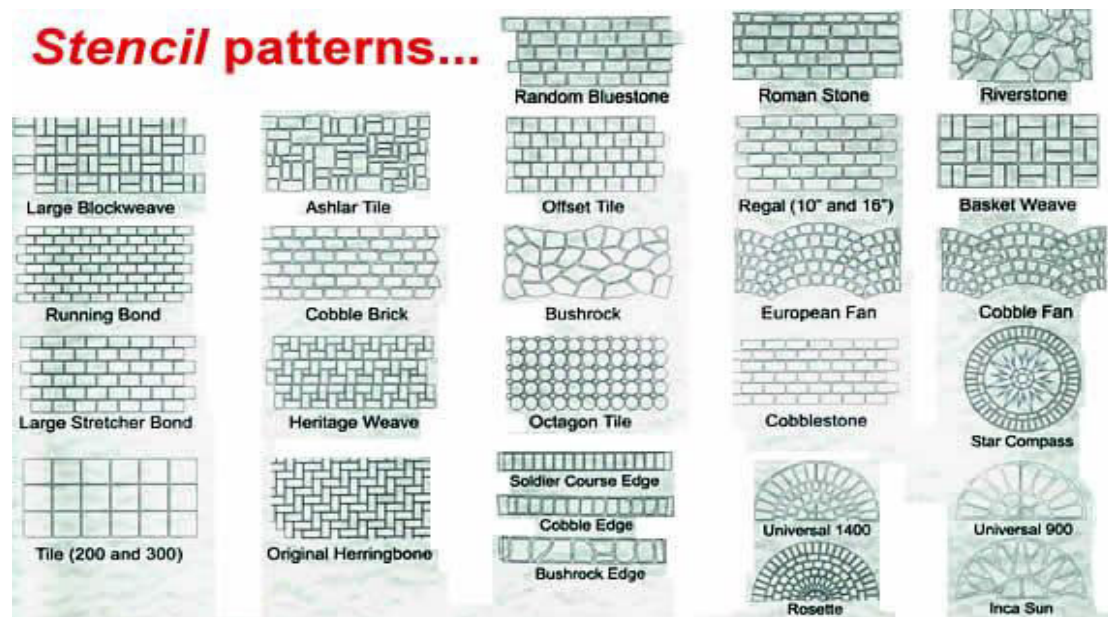
Custom - The Stencilcrete system offers full flexibility - complete colour range and combinations, paving styles and bordering finishes. Stencilcrete even allows you to incorporate customised patterns including street numbers or even a company logo.



Slip Reducing

Slip Reducing - Stencilcrete can be finished to provide a slip reducing surface over the concrete slab. Enjoy increased safety and reduced liability on those wet days.

3.3 VARIOUS STENCIL PATTERNS²:-



3.4 VARIOUS APPLICATIONS:-

- Residential Buildings and houses.
- Commercial Complexes.
- Suitable for Driveways.
- Patios.
- Courtyards.
- Corridors.
- Pool Surroundings.
- Roads etc.

3.5 CONSTRUCTION OF A STENCILLED SURFACE³:-

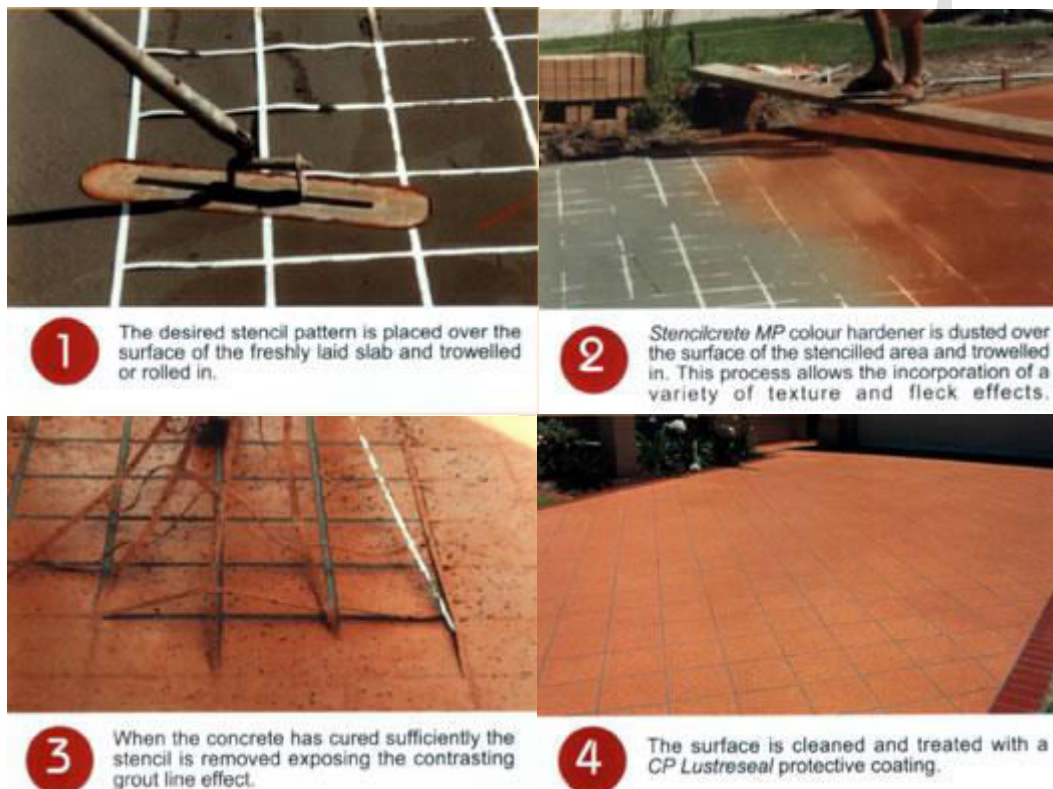
There two main methods of creating a stencilled surface:

- **Wet-cast** - the stencil is applied to a freshly laid concrete substrate
- **Spray-on** - stencil is laid over an existing surface and colour is applied .This is also called as **SPRAYCRETE**.

FINISHED CONCRETE SURFACE (WET CAST):-



3.5.1 WET CAST- STENCILCRETE IN 4 EASY STEPS:-



3.6 BENEFITS TO CUSTOMERS:-

- Great range of patterns and colours
- Traditional style paving by modern methods
- Minimal disruptions, fast installation
- Maximum design flexibility
- Weed Free
- Sealed surface minimizes staining
- No sinking or spreading

3.7 BENEFITS TO CONTRACTOR:-

- Eye catching, individual installations
- Fast installations for quick [profit](#) and good cash flow
- Handle curves, contours and slopes with ease
- Extra income with future resealing

IV. 4. SPRAYCRETE

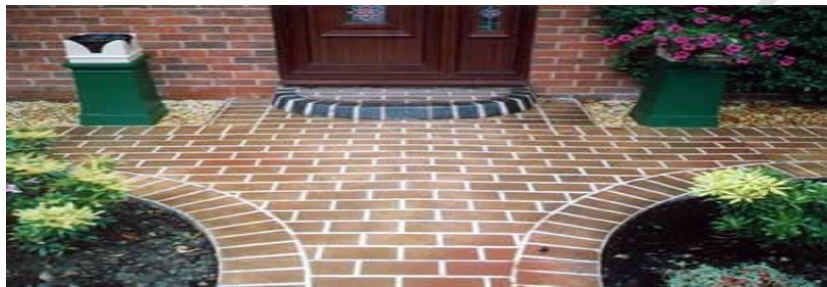
4.1 INTRODUCTION:-

Spraycrete is a high strength polymer cement coating and is designed for re-surfacing old or new concrete. Used with **stencilcrete** paper stencils, **Spraycrete** can create stunning designs quickly and economically.

This method is used to apply a stencilled finish to existing suitable substrates, such as concrete or tarmac. As there is no excavation and casting of a new slab, this method works out considerably cheaper than the wet cast method described above and can be used to completely rejuvenate old, tired surfaces, provided they are structurally sound. Using this system over cracked or crumbling concrete is a complete waste of money; it is a surface dressing, not a repair system.

Spraycrete transforms ordinary plain concrete into a beautiful practical surface that looks like stone, slate, brick or tile. **Spraycrete** offers higher strength properties than conventional concrete and is more flexible and durable. The finished **Spraycrete** surface is finished with a coating of Superseal acrylic sealer to provide high abrasion resistance and an easy to clean surface.

Spraycrete coloured cement coatings offer an attractive and durable finish at an affordable cost, making it the perfect choice for both commercial and residential installations and for both interior and exterior use.







4.2 SPRAYCRETE PROCESS AT A GLANCE:-



Apply Base Coat	Fix Stencil	Fix Stencil	Apply spraycrete top coat
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4.3 SPRAYCRETE FOR WALLS:-

			
Apply Base Coat	Apply Face Brick Stencil	Spraycrete Applied	Finished Wall

4.4 SPRAYCRETE ADVANTAGES:-

- **Spraycrete** - Naturally slip resistant and hard wearing finished surfaces. It is available in many standard colours with a choice of a many designs.
- **Spraycrete** - Can be applied over existing concrete flatwork at 2mm layer which permits all existing concrete falls and levels to remain basically unchanged.
- **Spraycrete** - Stencil patterns are uniform with shallow relief, so the finished texture surface has no deep crevices to trip on.

V. TEXTURED OVERLAYS

Textured overlays consist of a thin screed of a high-strength polymeric concrete that is coloured, laid over an existing substrate and then textured accordingly. It is similar to the Spray-On stencil system described above, except the coating is usually applied by trowel or float to a thickness of 6-20mm, rather than a thin, 1-3mm skin.

Again, a clean and structurally sound substrate is essential. An existing concrete should be power-washed and acid-etched to remove all dirt, laitence or other deleterious material. Existing access and drainage covers should be elevated to the new level (3mm below finished surface level) prior to the work commencing, and provision must be made for the extension of any movement joints. Any cracks or damaged sections of the concrete substrate should be cut out and patch-repaired with new concrete or an epoxy resin repair mortar. Any such repairs should be given ample time to cure before covering with the overlay coating.

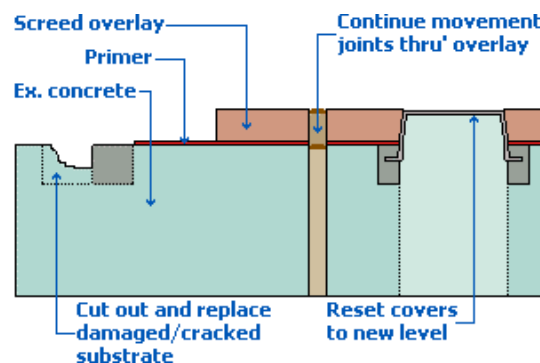


BEFORE-applying Textured Overlays



AFTER-applying Textured Overlays

Once the substrate is prepared, a primer coat is applied to ensure a sound bond between the substrate and the overlay. The overlay powder itself is mixed with a measured quantity of clean water in a mechanical mixer to achieve a smooth, workable yet not 'sloppy' consistency, which is applied immediately to the primed substrate and leveled out by tamping with screeder bars, and working with floats and trowels to the desired level.



Once the overlay screed is in place, it can be left smooth or it may be textured by use of texture mats (as used for PIC), stencils, textured rollers or other decorative tools.

VI. CONCLUSION

The Techniques described earlier viz., *Stencilcrete*, *spraycrete*, *PIC*, *Textured Overlays* are currently extensively used in countries like , North America, European countries and in the southern hemisphere, particularly Australia where concrete is possibly the most popular surfacing for patios, drives and 'yards' .These techniques have not yet found a firm footing in India. In a country like India where costs as well as aesthetic matter, these techniques are an excellent means to provide required aesthetics in a cost effective way. We thus sincerely hope that these techniques will be used to great benefits in the near future.